Department of Commerce • National Oceanic & Atmospheric Administration • National Weather Service

NATIONAL WEATHER SERVICE INSTRUCTION 10-517
DECEMBER 2, 2003

Operations and Services
Public Weather Services, NWSPD 10-5

MULTI-PURPOSE WEATHER PRODUCTS SPECIFICATION

NOTICE: This publication is available at: http://www.nws.noaa.gov/directives/

OPR: OS22 (R. Okulski) **Certified by:** OS22 (G. Austin)
Type of Issuance: Routine.

SUMMARY OF REVISIONS: This directive supersedes NWSI 10-517, dated November 19, 2002. This directive changes the product format for the Special Weather Statement (Section 3), the Hazardous Weather Outlook (Section 4), and Preliminary Local Storm Report (Section 5). This directive also provides more detailed procedural guidance for the Hazardous Weather Outlook (Section 4), and expands the Preliminary Local Storm Report (Section 5) to cover most weather events which exceed warning criteria.

signed 07/02/03

Gregory A. Mandt Date
Director, Office of Climate,
Water, and Weather Services

Multi Purpose Weather Products Specification

Table of Contents: Page

1. Introduction. This procedural directive provides detailed information on products Weather Forecast Offices (WFO) and the Storm Prediction Center (SPC) issue for severe, fire, marine, tropical, winter and/or non-precipitation weather and flooding hazards.

2. **Short Term Forecast (product category NOW)**.

2.1 Mission Connection. Short Term Forecasts provide the public with detailed weather information during significant and/or fast changing hydrometeorological conditions.

2.2 Issuance Guidelines.

2.2.1 Creation Software. WFOs should use Watch/Warning/Advisory software (WWA) to issue Short Term Forecasts.

2.2.2 Issuance Criteria. WFOs should issue Short Term Forecasts to discuss the evolution of precipitation, convective events, winter weather, tropical cyclone landfall events, marine events, fog, significant winds, blowing dust, and extreme temperatures (excessive heat or cold) within their geographic area of responsibility.

2.2.3 Issuance Time. Short Term Forecasts are non-scheduled, event driven products. WFOs should issue Short Term Forecasts at least every 1 to 3 hours when weather conditions consistent with the issuance criteria are present or forecast.

2.2.4 Valid Time. Short Term Forecasts are valid from the time of issuance until the expiration time.

2.2.5 Product Expiration Time. The product expiration time is not more than 6 hours after the time of issuance.

2.3 Technical Description. Short Term Forecasts will follow the format and content described in this section.

2.3.1 UGC Type. NOWs will use the Zone (Z) code of the UGC.

2.3.2 Mass News Disseminator Header. The Short Term Forecast MND header is "SHORT TERM FORECAST."

2.3.3 Content. WFOs will write Short Term Forecasts in non-technical terms with the highest priority information first. WFOs should include headlines for Tornado, Severe Thunderstorm and Flood Watches, and all warnings and advisories that have valid times longer than 3 hours which are currently in effect. WFOs should write Short Term Forecasts in future tense, focusing on location, movement, intensity, precipitation amounts and duration. Short Term Forecasts may mention threats to life and property.

WFOs should avoid using call to action statements in Short Term Forecasts. Short Term Forecasts should be concise. WFOs should segment Short Term Forecast into separate zone groupings based on common weather conditions. WFOs may include additional information as time permits.

2.3.4 Format.

```
FPaaii cccc ddhhmm
NOWccc

SHORT TERM FORECAST
NATIONAL WEATHER SERVICE CITY STATE
time am/pm time_zone day mon dd yyyy

STZ000-001-002-ddhhmm-
COUNTY A-COUNTY B-COUNTY C-
INCLUDING THE CITIES OF...TOWN 1...TOWN 2...TOWN 3
time am/pm time_zone day mon dd yyyy

.NOW...
...HEADLINE (FOR WATCHES...LONG DURATION WARNINGS...AND
ADVISORIES)...

THIS SECTION CONTAINS A CONCISE NON-TECHNICAL FREE TEXT PARAGRAPH
DESCRIBING EVENT TIME...DURATION...AND FORECAST CONDITIONS.

$$

FORECASTER NAME/NUMBER (OPTIONAL)
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Figure 1. Short Term Forecast Format

2.4 Updates, Amendments and Corrections. Short Term Forecasts are not updated or amended. WFOs will correct Short Term Forecasts for format and grammatical errors.

3. **Special Weather Statement (product category SPS)**.

3.1 Mission Connection. Special Weather Statements (SPS) provide the public with information concerning ongoing or imminent weather hazards.

3.2 Issuance Guidelines.

3.2.1 Creation Software. WFOs should use WWA to issue SPSs.

3.2.2 Issuance Criteria. The criteria depend on the situation the SPS is issued for. See Section 3.3.3 Content for additional details.

3.2.3 Issuance Time. SPSs are non-scheduled, event driven products.

3.2.4 Valid Time. SPSs are valid from time of issuance until the expiration or update time.

3.2.5 Product Expiration Time. The product expiration time is not more than 12 hours after the time of issuance.

3.3 Technical Description. SPSs will follow the format and content described in this section.

3.3.1 UGC Type. SPSs will use the Zone (Z) code of the UGC.

3.3.2 Mass News Disseminator Header. The SPS MND header is "SPECIAL WEATHER STATEMENT."

3.3.3 Content. WFOs may issue SPSs for ongoing or imminent weather conditions less than warning or advisory criteria. WFOs should issue SPSs to report funnel clouds which are not expected to touch ground and become tornadoes. WFOs may issue SPSs for winter and non-precipitation weather outlooks.

3.3.4 Format.

```
WWaa8i cccc ddhhmm
SPSccc

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE CITY STATE
time am/pm time_zone day mon dd yyyy

STZ001-002-003-ddhhmm-
Zone 1-Zone 2-Zone 3-

...HEADLINE...

BRIEF SUMMARY OF ONGOING OR FORECAST  WEATHER CONDITIONS LESS
THAN WARNING OR ADVISORY CRITERIA.


$$

FORECASTER NAME/NUMBER (OPTIONAL)
```

Figure 2. Special Weather Statement Format

3.4 Updates, Amendments and Corrections. SPSs should be updated as needed. WFOs will correct SPSs for format and grammatical errors.

4. **Hazardous Weather Outlook (product category HWO)**.

4.1 Mission Connection. WFOs issue Hazardous Weather Outlooks to inform the public, media, and emergency managers of the potential for winter weather, fire weather, non-precipitation, convective weather, tropical, marine or flood hazards.

4.2 Issuance Guidelines.

4.2.1 Creation Software. WFOs should use WWA to issue HWOs.

4.2.2 Issuance Criteria. The HWO is a dynamic product that should be updated whenever necessary to always depict the latest expected weather hazards for the seven day forecast period.

4.2.3 Issuance Time. WFOs will issue HWOs each day. WFOs should issue HWOs between 5 am and 7 am local time, except where local customers request a different issuance time.

4.2.4 Valid Time. An outlook is valid from the time of issuance until the next scheduled issuance or update.

4.2.5 Product Expiration Time. The product expiration time is 24 hours from issuance time.

4.3 Technical Description. HWOs will follow the format and content described in this section.

4.3.1 UGC Type. HWOs will use the Zone (Z) code of the UGC.

4.3.2 Mass News Disseminator Header. The HWO MND header is "HAZARDOUS WEATHER OUTLOOK."

4.3.3 Content. Hazardous weather outlooks will describe in concise non-technical terms the specific weather hazards of concern for the first and second forecast periods. HWOs should also briefly discuss in non-technical terms any weather hazards in the Day Two through Seven time period. The weather hazard threshold is the potential issuance of an outlook, watch, warning or advisory for a particular weather phenomena. WFOs should include a general time and location for the hazardous weather event, possible impact, and degree of uncertainty. WFOs may include headlines for watches, warnings, advisories and significant weather hazards. WFOs may include actual days of the week such as "TODAY" after ".DAY ONE..." and "SATURDAY THROUGH THURSDAY" after ".DAYS TWO THROUGH SEVEN..."

HWOs should include instructions to spotters and emergency managers for anytime during the seven day forecast period.

If no weather hazards are expected, **WFOs will include one of the following statements** in the Day One and/or Days Two through Seven sections:

"NO HAZARDOUS WEATHER IS EXPECTED AT THIS TIME" or
"THE PROBABILITY FOR WIDESPREAD HAZARDOUS WEATHER IS LOW"

The HWO should include a short description of the geographical area covered. HWOs may be written for all of a WFO's geographic area of responsibility in one segment or in more than one segment to cover specific weather hazards and/or geographic areas. If the HWO contains more than one segment, these segments will add up to cover all of a WFO's geographic area of responsibility each time the outlook is issued.

Weather hazards include the following:

a. Convective Weather. WFOs will discuss convective weather hazards such as large hail, damaging winds, and tornadoes for all or portions of their geographic area of responsibility. WFOs should include Storm Prediction Center Categorical Convective Outlook information for Day 1 and Day 2 Risks (Slight, Moderate and High) of organized severe convective weather. WFOs may include information on strong (less than severe) convection.

b. Winter Weather. WFOs will discuss winter weather hazards such as wind chill, snow, freezing rain, sleet, or a mixture of these weather phenomena for all or portions of their geographic area of responsibility.

WFOs should mention winter weather hazards in the Day 3 through Day 7 time period when there is a 30 percent or greater chance of these types of weather events exceeding local warning criteria. WFOs should mention active winter weather watches and warnings for Days 1 and 2 in the HWO.

c. Non Precipitation. WFOs will discuss non-precipitation weather hazards such as strong winds, excessive heat, blowing dust/sand, freezing temperatures during the growing season, and dense fog for all or portions of their geographic area of responsibility. WFOs should mention active Non-Precipitation Watches and Warnings for Days 1 and 2 in the HWO.

WFOs should mention non-precipitation weather hazards in the Day 3 through Day 7 time period when there is a 30 percent or greater chance of these types of weather events exceeding local warning criteria. Specific weather hazards to address in the Day 3 through Day 7 time period are Excessive Heat, Freeze, High Wind and Wind Chill.

d. Fire Weather. WFOs will discuss fire weather hazards such as extremely dry conditions, strong gusty winds, and dry thunderstorms for all or portions of their geographic area of responsibility. WFOs should mention active Fire Weather Watches

and Red Flag Warnings for Days 1 and 2 in the HWO. WFOs may include SPC Fire Weather Outlook (Day 1 and Day 2) information in the HWO.

e. Flooding. WFOs will discuss flood hazards for all or portions of their geographic area of responsibility. WFOs may include information on small stream flood situations and life threatening flood prone areas such as narrow canyons. WFOs should refer in the HWO to active Flood Potential Outlook statements.

f. Marine. WFOs should discuss the following marine hazards: high winds, high seas, high surf, coastal flooding, and waterspouts for all or portions of their area of responsibility. Rip currents may be discussed following the rip current guidance in NWSI 10-310, Section 4.3. WFOs routinely providing rip current information will include this information in the Day 1 portion of the HWO when forecasting a high risk of rip currents.

g. Tropical. WFOs should headline the Day 1 Tropical Cyclone Watches and Warnings issued by the Tropical Prediction Center (TPC). The HWO should urge users to consult Hurricane Local Statements issued by the WFO to obtain detailed information concerning potential hazards such as strong winds, storm surge, and excessive rainfall.

WFOs should be consistent with official guidance and products issued by the TPC in the Days 2 through 7 time period of the HWO. If a WFO forecasts a potential impact to all or portions of its geographic area of responsibility in Days 2 through 5, WFOs may use the following statement in the HWO: "CONSULT THE LATEST GUIDANCE AND INFORMATION FROM THE NATIONAL HURRICANE CENTER CONCERNING THE POSSIBLE EFFECTS OF (HURRICANE OR TROPICAL STORM) xxxx" where (xxxx is the name of the storm). WFOs will not reference tropical cyclone activity beyond the time period addressed by official tropical cyclone products (currently 5 days).

4.3.4 Format.

```
FLaa4i cccc ddhhmm
HWOccc

HAZARDOUS WEATHER OUTLOOK
NATIONAL WEATHER SERVICE city state
time am/pm time_zone day mon dd yyyy

STZ001-002-003-ddhhmm-
Zone 1-Zone 2-Zone 3-
time am/pm time_zone day mon dd yyyy

...HEADLINE FOR ACTIVE WATCHES, WARNINGS, ADVISORIES OR SIGNIFICANT WEATHER
HAZARDS... (OPTIONAL)

THIS HAZARDOUS WEATHER OUTLOOK IS FOR PORTION OF STATE(S).

.DAY ONE...ACTUAL DAY OF THE WEEK (Optional - SUCH AS TODAY OR THIS AFTERNOON)

WFOS WILL DISCUSS IN CONCISE NON-TECHNICAL TERMS EACH HAZARD'S IMPACT IN A FREE
TEXT FORMAT FOR THE FIRST AND SECOND FORECAST PERIODS. WFOS MAY REFERENCE
SUPPORTING WARNINGS, WATCHES, ADVISORIES, AND STATEMENTS.

.DAYS TWO THROUGH SEVEN...ACTUAL DAYS OF THE WEEK (Optional - SUCH AS MONDAY
THROUGH SATURDAY)

WFOS SHOULD DISCUSS IN CONCISE NON-TECHNICAL TERMS EACH HAZARD'S IMPACT IN A
FREE TEXT FORMAT FOR DAYS TWO THROUGH SEVEN. WFOS MAY REFERENCE SUPPORTING
WARNINGS, WATCHES, ADVISORIES, AND STATEMENTS. THIS SECTION IS A "HEADS UP" FOR
PLANNING PURPOSES.

.SPOTTER INFORMATION STATEMENT...

INSTRUCTIONS TO SPOTTERS OR EMERGENCY MANAGERS. WFOS MAY OMIT THIS SECTION IF
NO HAZARDOUS WEATHER IS EXPECTED IN BOTH THE DAY ONE AND DAYS TWO THROUGH
SEVEN TIME PERIODS.

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STZ004-005-006-ddhhmm-
Zone 4-Zone 5-Zone 6-
time am/pm time_zone day mon dd yyyy

SAME FORMAT AS THE FIRST SEGMENT (OPTIONAL)

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FORECASTER NAME/NUMBER (OPTIONAL)
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Figure 3. Hazardous Weather Outlook Format

4.4 Updates, Amendments and Corrections. WFOs should update the HWO if the forecast for hazardous weather changes. WFOs will correct outlooks for format and grammatical errors.

5. Preliminary Local Storm Report (product category LSR).

5.1 Mission Connection. Preliminary Local Storm Reports provide the Storm Prediction Center (SPC), adjacent WFOs, the public, media and emergency managers with reported observations of hazardous weather events.

5.2 Issuance Guidelines.

5.2.1 Creation Software. WFOs should use the AWIPS LSR generation software for reports.

5.2.2 Issuance Criteria. WFOs will issue LSRs for severe weather events such as tornadoes, waterspouts, large hail, thunderstorm/marine wind gusts and flash floods. WFOs should issue LSRs for other events listed in Appendix B. LSRs should be issued for events that meet or exceed applicable warning criteria. Other events may be included. LSRs should be issued as close to real time as possible. WFOs may issue LSRs to "summarize" a list of reports during and/or at the end of an event (e.g. severe weather outbreak, winter storm). Events reported more than seven days after occurrence will be included in monthly Storm Data reports.

5.2.3 Issuance Time. LSRs are non-scheduled, event driven products.

5.2.4 Valid Time. LSRs are valid upon issuance.

5.2.5 Product Expiration Time. Not applicable.

5.3 Technical Description. LSRs will follow the format and content described in this section.

5.3.1 UGC Type. Not applicable.

5.3.2 Mass News Disseminator Header. The LSR MND header is "PRELIMINARY LOCAL STORM REPORT."

5.3.3 Content. LSRs will follow a national standard format. SPC uses this format to decode local severe weather reports into national hourly and daily reports. All fields of data will begin at the prescribed column of the page. The report should include type of phenomena, date/time of occurrence, location of event (including state, county, direction, distance from a well known site and Latitude/Longitude points), source of the report, damage, deaths, and/or injuries and remarks to convey other noteworthy information about the event. After all weather events listed in the LSR, WFOs may use a delimiter "&&" to provide a narrative summary of weather events.

LSRs are preliminary in nature, therefore the final report of verified weather events will be listed in monthly Storm Data reports. Please refer to the NDS procedural directives or associated regional supplements for warning threshold criteria for the following weather phenomena:

Marine Weather	NWSI 10-313 (Special Marine Warnings)
Severe Weather	NWSI 10-511 (WFO Severe Weather Products Specification)
Winter Weather	NWSI 10-513 (WFO Winter Weather Products Specification)
Non Precipitation	NWSI 10-515 (WFO Non-Precipitation Weather Products Specification)
Tropical Weather	NWSI 10-601 (Products)
Flooding	NWSI 10-922 (Weather Forecast Office Hydrologic Products Specification)

Please refer to Appendix B for a list of event sources and weather event types.

5.3.4 Format.

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123456789012345678901234567890123456789012345678901234567890123456789

NWaa5i Kccc DDHHMM
LSRccc

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE CITY STATE
time am/pm time_zone day mon dd yyyy

..TIME..    ...EVENT...     ...CITY LOCATION...      ...LAT.LON...
..DATE..    ....MAG....     ..COUNTY LOCATION.. ST   ...SOURCE....
            ..REMARKS..

hhmm qM|xxx|EVENT          |DIST DIR CITY           |LL.LLd LLL.LLd|x|
MM/DD/YYYY||MAG UNIT    |xx|COUNTY              |ST|x|SOURCE          |
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxx|*** # FATAL, # INJ *** REMARKS                            |
xxxxxxxxxxx| . .                                                 . . |
```

Figure 4. Local Storm Report Format

5.4 Updates, Amendments and Corrections. Updates and amendments are not applicable. WFOs will issue a new LSR if the office receives new reports of weather events which meet or exceed warning criteria or updated information on previously reported weather events. WFOs will correct statements for format and grammatical errors.

6. **Mesoscale Discussion (product category MCD)**.

6.1 Mission Connection. SPC issues Mesoscale Discussions (MD) to convey to CONUS WFOs, the public, media and emergency managers the current meteorological reasoning for short term hazardous weather concerns.

6.2 Issuance Guidelines.

6.2.1 Creation Software. SPC will use N-AWIPS text editor.

6.2.2 Issuance Criteria. MDs issuance criteria depends on the type of weather hazard. Refer to Section 6.3.3 Content for details.

6.2.3 Issuance Time. MCDs are non-scheduled, event driven products.

6.2.4 Valid Time. The valid time is from the time of issuance until the expiration time.

6.2.5 Product Expiration Time. The expiration time is the end of the valid time.

6.3 Technical Description. MDs will follow the format and content described in this section.

6.3.1 UGC Type. MDs will use the Zone (Z) code of the UGC.

6.3.2 Mass News Disseminator Header. The MCD MND header is "MESOSCALE DISCUSSION."

6.3.3 Content. SPC uses the Mesoscale Discussion (MD) to alert WFOs and various customers to different types of short term weather hazards. Each subsection will address a type of hazard covered by a MD.

a. Severe Potential/Convective Trends. SPC should issue a MD for severe potential 1 to 2 hours prior to a severe thunderstorm or tornado watch issuance. SPC should also issue an MD for severe potential when it is monitoring an area for a potential convective watch or when thunderstorm development is potentially severe, but will not have enough areal coverage or duration that is expected to last long enough for a convective watch issuance. MDs are also normally issued at least every 2 to 3 hours for each convective watch that is in effect and focus on mesoscale and storm scale features affecting the severe weather within the watch area.

b. Convective Heavy Rainfall. SPC should issue a MD for localized areas where rainfall rates equal to or greater than 3 inches per hour, or 2 or more inches are expected at any one location in one hour, or rainfall rates of 1.5 inches per hour are expected to occur for 3 hours or greater. SPC may issue a Convective Heavy Rain MD to forecast the end of a heavy rain event.

c. Heavy Snowfall. SPC should issue a MD for snowfall accumulation rates of 1 inch per hour or greater for a period of 2 hours or greater at elevations below 4000 feet MSL (mean sea level) and accumulation rates of 2 inches per hour or greater for a period of 2 hours or greater at elevations above 4000 feet MSL. Discussions may also address precipitation trends (increasing or decreasing rates), and climatologically rare events.

d. Freezing Rain. SPC should issue a MD for freezing rain accumulations greater than .05 inch per hour for a period of 3 hours or greater. Discussions may also address where a precipitation type is forecast to change from liquid to freezing or freezing to liquid.

e. Blizzard. SPC should issue a MD for mesoscale blizzard conditions forecast to persist 3 hours or greater.

f. Convective Outlook Upgrade. SPC should issue a MD when considering an upgrade of an outlook risk (to moderate or high) due to higher probabilities. SPC will issue this type of MD prior to the 1300, 1630, or 2000 UTC convective outlook issuance times, and describe the area to be upgraded. This MD will refer to the preceding outlook discussion.

6.3.4 Format.

```
ACUS11 KWNS ddhhmm
SWOMCD
STZ000-STZ000-ddhhmm-

MESOSCALE DISCUSSION nnnn
NWS STORM PREDICTION CENTER NORMAN OK
time am/pm time_zone day mon dd yyyy

AREAS AFFECTED...(PORTION OF STATES OR GEOGRAPHICAL AREAS)...

CONCERNING...(WEATHER HAZARD)

VALID DDHHMMZ-DDHHMMZ

DISCUSSION TO CONVEY METEOROLOGICAL REASONING FOR MESOSCALE
DISCUSSION.

...PLEASE SEE WWW.SPC.NOAA.GOV FOR GRAPHICAL PRODUCT...

...FORECASTER NAME...MM/DD/YY

ATTN...WFO A...WFO B... (AFFECTED WFOS)

LAT/LON CORNER POINTS FOR MCD GRAPHIC

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Figure 5. Mesoscale Convective Discussion

6.4 Updates, Amendments and Corrections. SPC will issue MDs as needed and there are no updates. SPC will correct messages for format and grammatical errors.

APPENDIX A - Product Examples

Table of Contents: Page

1. Introduction. This appendix provides product examples for the WFOs, SPC and the public.

2. Short Term Forecast.

FPUS71 KCTP 031702
NOWCTP

SHORT TERM FORECAST
NATIONAL WEATHER SERVICE STATE COLLEGE PA
1202 PM EST WED APR 3 2002

PAZ028-036-041-042-046-049>053-056>059-063>066-032002-
ADAMS-COLUMBIA-CUMBERLAND-DAUPHIN-FRANKLIN-JUNIATA-LANCASTER-
LEBANON- MONTOUR-NORTHERN LYCOMING-NORTHUMBERLAND-PERRY-
SCHUYLKILL-SNYDER- SOUTHERN LYCOMING-SULLIVAN-UNION-YORK-
INCLUDING THE CITIES OF...HARRISBURG...LANCASTER...WILLIAMSPORT...YORK
1202 PM EST WED APR 3 2002

.NOW...
NUMEROUS SHOWERS...SOME HEAVY...WILL BE ACROSS THE SUSQUEHANNA VALLEY EARLY THIS AFTERNOON. RAIN WILL BE FROM NEAR WILLIAMSPORT...SOUTHWARD ACROSS HARRISBURG...TO JUST WEST OF CHAMBERSBURG EARLY ON. THE LEADING EDGE OF THE RAIN WILL BE NEAR A LANCASTER...YORK LINE BY 1 PM. THE ACTIVITY WILL BE EAST OF THE SUSQUEHANNA VALLEY BY 3 PM.
$$

FPUS73 KILX 201850
NOWILX

SHORT TERM FORECAST
NATIONAL WEATHER SERVICE LINCOLN IL
149 PM CDT SUN APR 20 2003

ILZ046-057-062-063-067-068-071073-201930-
CLARK IL-CLAY IL-CRAWFORD IL-CUMBERLAND IL-EDGAR IL-JASPER IL-
LAWRENCE IL-RICHLAND IL-VERMILION IL-
INCLUDING THE CITIES OF...TOLEDO...ROBINSON...PARIS...OLNEY...
NEWTON...MARSHALL...LAWRENCEVILLE...FLORA AND DANVILLE
149 PM CDT SUN APR 20 2003

.NOW...
...A SEVERE THUNDERSTORM WATCH IS IN EFFECT UNTIL 6 PM...
SCATTERED THUNDERSTORMS WILL CONTINUE TO MOVE NORTHEAST ACROSS SOUTHEASTERN ILLINOIS THROUGH 230 PM. THE STORMS WILL BE ALONG AND SOUTH OF AN OLNEY TO HUTSONVILLE LINE WITH SMALL HAIL AND WINDS TO 45 MPH POSSIBLE WITH THE STRONGER STORMS.

$$

FPUS73 KUNR 190454
NOWRAP

SHORT TERM FORECAST
NATIONAL WEATHER SERVICE RAPID CITY SD
951 PM MST TUE MAR 18 2003

WYZ054-058-071-190706-
NORTHEASTERN CROOK-NORTHERN CAMPBELL-SOUTHERN CAMPBELL-WESTERN CROOK- WESTON-WYOMING BLACK HILLS-
INCLUDING THE CITIES OF...COLONY...GILLETTE...MOORCROFT...
NEWCASTLE...SUNDANCE...WRIGHT
951 PM MST TUE MAR 18 2003

.NOW...
...WINTER STORM WARNING TONIGHT...
ACROSS MUCH OF NORTHEAST WYOMING...OCCASIONAL LIGHT SNOW WILL CONTINUE LATE THIS EVENING WITH ADDITIONAL ACCUMULATIONS OF UP TO AN INCH THROUGH MIDNIGHT. NORTH WINDS OF 15 TO 30 MPH WILL CAUSE CONSIDERABLE BLOWING AND DRIFTING SNOW. TRAVEL IS NOT ADVISED FOR MOST OF CAMPBELL COUNTY.

$$

SDZ027-030-031-041-042-190706-
CUSTER CO PLAINS-FALL RIVER-PENNINGTON CO PLAINS-SHANNON- SOUTHERN FOOT HILLS-
INCLUDING THE CITIES OF...EDGEMONT...HOT SPRINGS...PINE RIDGE...WALL
951 PM MST TUE MAR 18 2003

.NOW...
ACROSS THE SOUTHWEST SOUTH DAKOTA PLAINS...OCCASIONAL RAIN WILL CONTINUE THROUGH THE EVENING HOURS. RAIN MAY MIX WITH OR CHANGE OVER TO SNOW AT TIMES. ADDITIONAL RAINFALL AMOUNTS OF AROUND TEN HUNDREDTHS OF AN INCH ARE EXPECTED IN MANY AREAS THROUGH MIDNIGHT.

$$

SDZ024-028-029-190706-
CENTRAL BLACK HILLS-NORTHERN BLACK HILLS-SOUTHERN BLACK HILLS-
INCLUDING THE CITIES OF...CUSTER...DEADWOOD...MT RUSHMORE
951 PM MST TUE MAR 18 2003

.NOW...
...WINTER STORM WARNING TONIGHT...
FOR THE BLACK HILLS...OCCASIONAL SNOW WILL CONTINUE TO FALL THIS EVENING. SNOWFALL RATES OF UP TO ONE HALF INCH PER HOUR CAN BE EXPECTED FOR MANY AREAS THROUGH MIDNIGHT.

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3. Special Weather Statement.

WWUS81 KBOX 242000
SPSBOX

SPECIAL WEATHER STATEMENT
NATIONAL WEATHER SERVICE TAUNTON MA
300 PM EST TUE DEC 24 2002

MAZ002>024-CTZ002>004-RIZ001>007-251000-
WESTERN FRANKLIN-EASTERN FRANKLIN-NORTHERN WORCESTER-WESTERN MIDDLESEX-WESTERN ESSEX-EASTERN ESSEX-WESTERN HAMPSHIRE-WESTERN HAMPDEN-EASTERN HAMPHSHIRE-EASTERN HAMPDEN-SOUTHERN WORCESTER-WESTERN NORFOLK-SOUTHEAST MIDDLESEX-SUFFOLK-EASTERN NORFOLK-NORTHERN BRISTOL-WESTERN PLYMOUTH-EASTERN PLYMOUTH-SOUTHERN BRISTOL-SOUTHERN PLYMOUTH-BARNSTABLE-DUKES-NANTUCKET-HARTFORD-TOLLAND-WINDHAM-NORTHWEST PROVIDENCE-SOUTHEAST PROVIDENCE-WESTERN KENT-EASTERN KENT-BRISTOL-WASHINGTON-NEWPORT-
300 PM EST TUE DEC 24 2002

...A WHITE CHRISTMAS FOR SOUTHERN NEW ENGLAND...

A WINTER STORM WILL FORM OFF THE COAST OF NEW JERSEY THIS EVENING... BUT WILL MOVE QUICKLY TO THE NORTHEAST AND BE EAST OF CAPE COD BY CHRISTMAS MORNING.

PERIODS OF LIGHT TO MODERATE SNOW WILL DEVELOP ACROSS SOUTHERN NEW ENGLAND THIS EVENING. ACCUMULATIONS OF 1 TO 3 INCHES ARE EXPECTED BEFORE THE SNOW TAPERS OFF CHRISTMAS MORNING.

MOTORISTS SHOULD BE PREPARED FOR ICY ROAD CONDITIONS...PARTICULARLY ON LESS TRAVELED ROADS THIS HOLIDAY EVENING. STAY TUNED TO NOAA

WEATHER RADIO AND LOCAL TELEVISION STATIONS FOR THE LATEST INFORMATION ON THE HOLIDAY WINTER WEATHER.

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4. Hazardous Weather Outlook.

(Severe Convective Weather)

FLUS43 KTOP 021130
HWOTOP

HAZARDOUS WEATHER OUTLOOK
NATIONAL WEATHER SERVICE TOPEKA KS
630 AM CDT FRI AUG 2 2002

KSZ008>013-020>024-026-034>040-054>056-058-059-
REPUBLIC-WASHINGTON-MARSHALL-NEMAHA-BROWN-SHERMAN-CLOUD-CLAY-
RILEY-POTTAWATOMIE-JACKSON-JEFFERSON-OTTAWA-DICKINSON-GEARY-
MORRIS-WABAUNSEE-SHAWNEE-DOUGLAS-LYON-OSAGE-FRANKLIN-COFFEY-
ANDERSON-
630 AM CDT FRI AUG 2 2002

THIS HAZARDOUS WEATHER OUTLOOK IS FOR NORTHEAST KANSAS.

.DAY ONE...TODAY

THERE IS A MODERATE RISK OF SEVERE THUNDERSTORMS THIS AFTERNOON THROUGHOUT EASTERN KANSAS. THUNDERSTORMS MAY PRODUCE DAMAGING WIND GUSTS AND LARGE HAIL. ISOLATED TORNADOES ARE POSSIBLE.

.DAYS TWO THROUGH SEVEN...SATURDAY THROUGH THURSDAY

NO HAZARDOUS WEATHER IS EXPECTED AT THIS TIME.

.SPOTTER INFORMATION STATEMENT...

SKYWARN SPOTTER ACTIVATION WILL LIKELY BE NEEDED THIS AFTERNOON.
$$

(Flooding)

FLUS45 KTWC 201400
HWOTWC

HAZARDOUS WEATHER OUTLOOK
NATIONAL WEATHER SERVICE TUCSON AZ
700 AM MST FRI SEP 20 2002

AZZ019-029>035-211400-
NORTHERN GREENLEE COUNTY-SOUTHEAST PINAL COUNTY-UPPER GILA RIVER VALLEY-WESTERN PIMA COUNTY-TOHONO-OODHAM NATION-TUCSON METRO/MARANA/GREEN VALLEY-SANTA CRUZ COUNTY-COCHISE COUNTY-
700 AM MST FRI SEP 20 2002

THIS HAZARDOUS WEATHER OUTLOOK IS FOR SOUTHEAST ARIZONA

.DAY ONE...TODAY

THE REMNANTS OF HURRICANE JULIO WILL BRING MODERATE TO HEAVY RAIN TODAY AND TONIGHT. WASHES AND SMALL RIVERS WILL RISE QUICKLY THIS AFTERNOON AND TONIGHT. FOR FURTHER DETAILS PLEASE REFER TO THE FLOOD WATCH PRODUCT ISSUED BY THIS OFFICE AT 400 AM.

.DAYS TWO THROUGH SEVEN...SATURDAY THROUGH THURSDAY

UNORGANIZED SEVERE CONVECTION MAY OCCUR SUNDAY AND MONDAY...OTHERWISE NO HAZARDOUS WEATHER IS EXPECTED AT THIS TIME.

.SPOTTER INFORMATION STATEMENT...

SKYWARN SPOTTER ACTIVATION WILL BE NEEDED TODAY AND TONIGHT.

$$

(High Wind/Marine/Heavy Snow)

FLUS46 KMFR 201500
HWOMFR

HAZARDOUS WEATHER OUTLOOK
NATIONAL WEATHER SERVICE MEDFORD OR
700 AM PST FRI DEC 20 2002

ORZ021>031-CAZ080>084-211500-
SOUTH CENTRAL OREGON COAST-CURRY COUNTY COAST-CENTRAL DOUGLAS COUNTY-EASTERN CURRY AND JOSEPHINE COUNTIES-EASTERN DOUGLAS COUNTY FOOTHILLS-JACKSON COUNTY-SOUTH CENTRAL OREGON CASCADES-SISKIYOU MOUNTAINS AND SOUTHERN OREGON CASCADES-KLAMATH BASIN-NORTHERN AND EASTERN KLAMATH AND WESTERN LAKE COUNTIES-CENTRAL AND EASTERN LAKE COUNTY-WESTERN SISKIYOU COUNTY-CENTRAL SISKIYOU COUNTY-SOUTH CENTRAL SISKIYOU COUNTY-NORTH CENTRAL AND SOUTHEAST SISKIYOU COUNTY-NORTHEAST SISKIYOU AND NORTHWEST MODOC COUNTIES-MODOC COUNTY-
700 AM PST FRI DEC 20 2002

THIS HAZARDOUS WEATHER OUTLOOK IS FOR SOUTHWEST OREGON AND NORTHEAST CALIFORNIA.

.DAY ONE...TODAY

A PACIFIC WINTER STORM WILL BRING HIGH WINDS WITH HURRICANE FORCE GUSTS AND HIGH SEAS TO THE SOUTH OREGON COAST TODAY. THIS WINTER STORM WILL ALSO BRING HEAVY SNOW TO THE MOUNTAINS OF SOUTHWEST OREGON AND NORTHEAST CALIFORNIA ABOVE 5000 FEET TONIGHT. FOR FURTHER DETAILS ON THIS STORM PLEASE REFER TO THE HIGH WIND WARNING...GALE WARNING AND HEAVY SNOW WARNING ISSUED BY THIS OFFICE AT 400 AM.

.DAYS TWO THROUGH SEVEN...SATURDAY THROUGH THURSDAY

ANOTHER PACIFIC WINTER STORM WILL MOVE INTO THE PACIFIC NORTHWEST MONDAY NIGHT AND TUESDAY. THIS STORM IS EXPECTED TO BRING MORE VALLEY RAIN AND MOUNTAIN SNOW.

.SPOTTER INFORMATION STATEMENT...

SKYWARN SPOTTER ACTIVATION MAY BE NEEDED TONIGHT AND SATURDAY.
$$

(No Hazardous Weather)

FLUS45 KEPZ 031400
HWOEPZ

HAZARDOUS WEATHER OUTLOOK
NATIONAL WEATHER SERVICE EL PASO TX
700 AM MST FRI APR 3 2003

TXZ055>056-NMZ022>025-030>032-041400-
EL PASO-HUDSPETH-SOUTHWEST MOUNTAINS/LOWER GILA REGION-SIERRA COUNTY LAKES REGION-TULAROSA BASIN/SOUTHERN DESERT-SOUTHERN SACRAMENTO MOUNTAINS-SOUTHWEST DESERT/BOOTHEEL-SOUTHWEST DESERT/MIMBRES BASIN-SOUTHERN DESERT-
700 AM MST FRI APR 3 2003

THIS HAZARDOUS WEATHER OUTLOOK IS FOR SOUTHERN NEW MEXICO AND EXTREME SOUTHWEST TEXAS.

.DAY ONE...TODAY

NO HAZARDOUS WEATHER IS EXPECTED AT THIS TIME.

.DAYS TWO THROUGH SEVEN...SATURDAY THROUGH THURSDAY

NO HAZARDOUS WEATHER IS EXPECTED AT THIS TIME.

$$

(Unorganized Convective Weather)

FLUS44 KMOB 021000
HWOMOB

HAZARDOUS WEATHER OUTLOOK
NATIONAL WEATHER SERVICE MOBILE AL
600 AM CDT FRI AUG 02 2002

ALZ051>064-FLZ001>006-MSZ067-075-076-078-079-031100-
CHOCTAW-WASHINGTON-CLARKE-WILCOX-MONROE-CONECUH-BUTLER-
CRENSHAW-ESCAMBIA-COVINGTON-UPPER MOBILE-UPPER BALDWIN-LOWER
MOBILE-LOWER BALDWIN-INLAND ESCAMBRIA-COASTAL ESCAMBRIA-INLAND
SANTA ROSA-COASTAL SANTA ROSA-INLAND OKALOOSA-COASTAL OKALOOSA-
600 AM CDT FRI AUG 02 2002

THIS HAZARDOUS WEATHER OUTLOOK IS FOR SOUTHERN ALABAMA...
SOUTHEAST MISSISSIPPI AND THE EXTREME WESTERN PORTION OF THE FLORIDA
PANHANDLE.

.DAY ONE...TODAY

SCATTERED THUNDERSTORMS WILL DEVELOP ALONG THE ALABAMA AND
MISSISSIPPI COAST THIS AFTERNOON. SOME OF THESE THUNDERSTORMS MAY
BECOME SEVERE WITH WIND GUSTS TO 65 MPH AND UP TO ONE INCH HAIL.
SOME THUNDERSTORMS MAY ALSO PRODUCE HEAVY RAIN AND LOCALIZED
FLASH FLOODING.

.DAYS TWO THROUGH SEVEN...SATURDAY THROUGH THURSDAY

NO HAZARDOUS WEATHER IS EXPECTED AT THIS TIME.

.SPOTTER INFORMATION STATEMENT...

SKYWARN SPOTTER ACTIVATION MAY BE REQUIRED THIS AFTERNOON.

$$

(Excessive Heat)

FLUS41 KPHI 021000
HWOPHI

HAZARDOUS WEATHER OUTLOOK
NATIONAL WEATHER SERVICE MOUNT HOLLY NJ
600 AM EDT FRI AUG 2 2002

DEZ001>004-NJZ001-007>010-012>027-PAZ054-055-067>071-031000-
NEW CASTLE-KENT-INLAND SUSSEX-DELAWARE BEACHES-SUSSEX-WARREN-
MORRIS-HUNTERDON-SOMERSET-MIDDLESEX-WESTERN MONMOUTH-EASTERN
MONMOUTH-MERCER-SALEM-GLOUCESTER-CAMDEN-NORTHWESTERN
BURLINGTON-WESTERN OCEAN-CUMBERLAND-WESTERN ATLANTIC-WESTERN
CAPE MAY-EASTERN CAPE MAY-EASTERN ATLANTIC-EASTERN OCEAN-
SOUTHEASTERN BURLINGTON-CARBON-MONROE-CHESTER-MONTGOMERY-
BUCKS-DELAWARE-PHILADELPHIA-
600 AM EDT FRI AUG 2 2002

THIS HAZARDOUS WEATHER OUTLOOK IS FOR SOUTHEAST PENNSYLVANIA...
CENTRAL AND SOUTHERN NEW JERSEY AND THE NORTHERN DELMARVA.

.DAY ONE...TODAY

NO HAZARDOUS WEATHER IS EXPECTED AT THIS TIME.

.DAYS TWO THROUGH SEVEN...SATURDAY THROUGH THURSDAY

EXCESSIVE HEAT IS ANTICIPATED EARLY NEXT WEEK.

HIGH PRESSURE DRIFTING OFF THE MID ATLANTIC COAST LATE SATURDAY WILL
PUMP VERY HOT AND HUMID AIR INTO THE REGION EARLY NEXT WEEK.
EXCESSIVELY HOT AND HUMID WEATHER CONDITIONS MAY BECOME
DANGEROUS MONDAY THROUGH WEDNESDAY.

.SPOTTER INFORMATION STATEMENT...

SPOTTER ACTIVATION WILL NOT BE NEEDED.

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5. Preliminary Local Storm Report.

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NWUS51 KLWX 230800
LSRLWX

PRELIMINARY LOCAL STORM REPORT
NATIONAL WEATHER SERVICE BALTIMORE MD/WASHINGTON DC
312 PM CDT TUE APR 01 2003

..TIME..    ...EVENT...     ...CITY LOCATION...      ...LAT.LON...
..DATE..    ....MAG....     ..COUNTY LOCATION.. ST   ...SOURCE....
            ..REMARKS..

0202 PM     TORNADO         SILVER SPRING            39.00N  77.05W
04/01/2003                  MONTGOMERY          MD   NWS EMPLOYEE

            *** 1 FATAL, 3 INJ *** BUILDING DAMAGE


0215 PM     WIND GUST       CAMP SPRINGS             38.80N  76.92W
04/01/2003  90 MPH          MONTGOMERY          MD   NWS EMPLOYEE

            ROOF DAMAGE


0225 PM     HAIL            COLLEGE PARK             39.00N  76.93W
04/01/2003  2.00 INCH       PRINCE GEORGE'S     MD   EMERGENCY MNGR


0235 PM     FLASH FLOOD     5 SE GAITHERSBURG        39.09N  77.15W
04/01/2003                  MONTGOMERY          MD   TRAINED SPOTTER

            WATER TWO FEET DEEP ACROSS ROUTE 355 AND SHADY GROVE ROAD

0245 PM     WIND DAMAGE     4 E GODDARD              38.99N  76.78W
04/01/2003                  PRINCE GEORGE'S     MD   TRAINED SPOTTER

            FENCE BLOWN DOWN
```

6. Mesoscale Discussion.

(Heavy Snow)

ACUS11 KWNS 041621
SPCMCD
IAZ000-MOZ000-WIZ000-ILZ000-042015-

MESOSCALE DISCUSSION 0184
NWS STORM PREDICTION CENTER NORMAN OK
1021 AM CST TUE MAR 04 2003

AREAS AFFECTED...SRN AND ERN IA/NRN MO/SRN WI/NRN IL
CONCERNING...HEAVY SNOW

VALID 041621Z - 042015Z

...HEAVY SNOW WILL DEVELOP ACROSS PORTIONS OF SRN/ERN IA THIS AFTERNOON WITH SNOWFALL RATES OF 1-1.5"/HR POSSIBLE... LARGE SCALE LIFT WILL INCREASE ACROSS CNTRL IA LATER TODAY...AS A SHORTWAVE TROUGH LIFTS NORTHEAST FROM THE FOUR CORNERS REGION. ADDITIONAL FORCING ASSOCIATED WITH THE LEFT EXIT REGION OF THE 500MB JET WILL ALSO ENHANCE LIFT. LATEST RADAR IMAGERY FROM OMAHA SHOW THAT SNOW IS ALREADY DEVELOPING...IN THE 850MB JET AXIS. AS ISENTROPIC LIFT INCREASES TODAY...PARTICULARLY NOTED IN THE 290K LAYER...CONDENSATION PRESSURE DEFICIT VALUES FALL TO 10-30MB AFTER 04/18Z. ETA POINT FORECAST SOUNDINGS SHOW SATURATED SOUNDINGS WITH STRONG LIFT THIS AFTERNOON...WITH A FAVORABLE DENDRITIC GROWTH REGION. THE HEAVIEST SNOWS WILL LIKELY FALL IN AN AREA FROM ABOUT 30 MILES W/SW DSM TO THE QUAD CITIES/ROCKFORD...AND EVENTUALLY SPREADING INTO THE CHICAGO AREA THIS EVENING

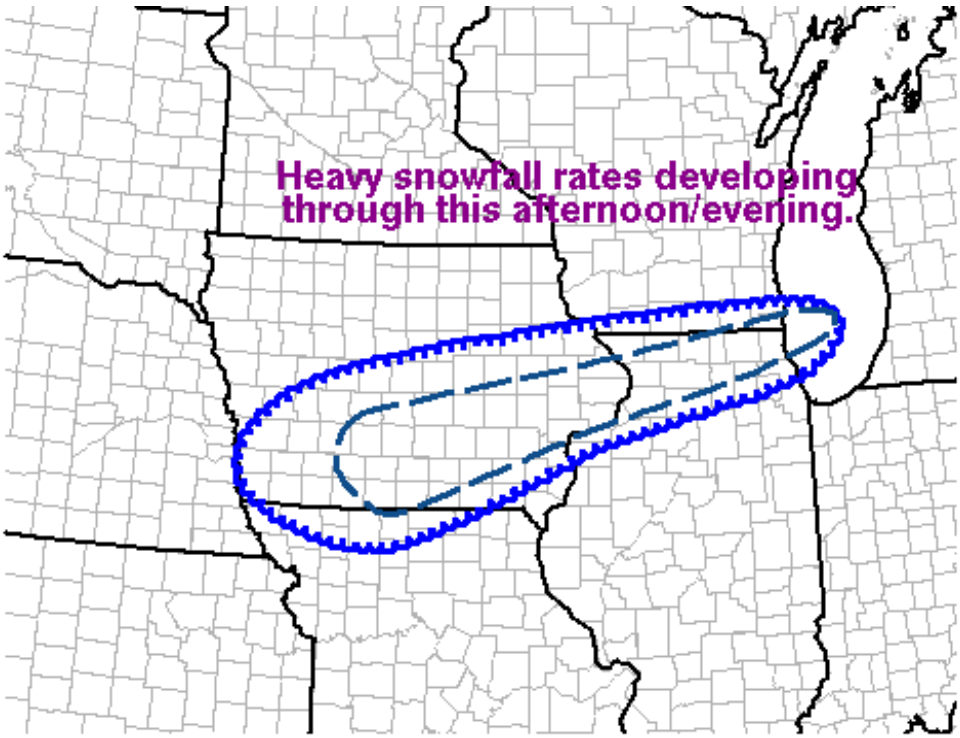
...PLEASE SEE WWW.SPC.NOAA.GOV FOR GRAPHICAL PRODUCT...

. ..TAYLOR/RACY.. 03/04/2003

41839504 42509166 42738742 42038752 41329049 40199372 40799575

$$

(Mesoscale Discussion Graphic)



SPC MCD #0184

(Severe Thunderstorm Discussion)

ACUS11 KWNS 171740
SPCMCD
KSZ000-OKZ000-WIZ000-ILZ000-172015-

MESOSCALE DISCUSSION 0262
NWS STORM PREDICTION CENTER NORMAN OK
1140 AM CST MON MAR 17 2003

AREAS AFFECTED...PARTS OF SW KS AND WRN/CNTRL OK
CONCERNING...SEVERE THUNDERSTORM POTENTIAL

VALID 171740Z - 172015Z

POTENTIAL FOR SEVERE THUNDERSTORMS WILL INCREASE THIS AFTERNOON... WW MAY BECOME NECESSARY WITHIN NEXT 2 TO 3 HOURS. EXIT REGION OF MID/UPPER JET STREAK IS NOSING ACROSS THE SOUTH CENTRAL ROCKIES INTO THE SOUTHERN HIGH PLAINS...WITH MID-LEVEL CYCLONIC VORTICITY MAXIMUM AND ASSOCIATED SHORT WAVE TROUGH NOW EVIDENT IN WATER VAPOR IMAGERY ALONG THE TEXAS/NEW MEXICO BORDER. SHORT WAVE IS PROGGED TO LIFT NORTHEASTWARD ACROSS THE TEXAS PANHANDLE DURING THE NEXT 3 TO 6 HOURS...AND LEADING EDGE OF STRONGER MID/UPPER FORCING IS EXPECTED TO PROVIDE FOCUS FOR INTENSE CONVECTIVE DEVELOPMENT BY AROUND 21Z. MODELS SUGGEST 30 KT SOUTHEASTERLY LOW-LEVEL JET DEVELOPING ALONG AN AXIS FROM CENTRAL OKLAHOMA INTO SOUTHWEST KANSAS DURING THE LATE AFTERNOON...WHICH WILL CONTRIBUTE TO MOISTURE RETURN AND THE DEVELOPMENT OF WEAK TO MODERATE INSTABILITY. DAYTIME HEATING ON NORTHEASTERN PERIPHERY OF SOUTHERN PLAINS LOW-LEVEL THERMAL RIDGE WILL CONTRIBUTE TO CAPE IN EXCESS OF 1000 J/KG FOR SURFACE PARCELS LIFTED BENEATH STEEP MID-LEVEL LAPSE RATE ENVIRONMENT. THOUGH VERTICAL SHEAR PROFILES ARE NOT PROGGED TO BECOME PARTICULARLY STRONG...HODOGRAPHS WILL BE SUFFICIENT FOR SUPERCELLS...ESPECIALLY NEAR/NORTH OF ANTICYCLONIC HIGH LEVEL JET AXIS...NORTH THROUGH NORTHEAST OF GAGE OK.

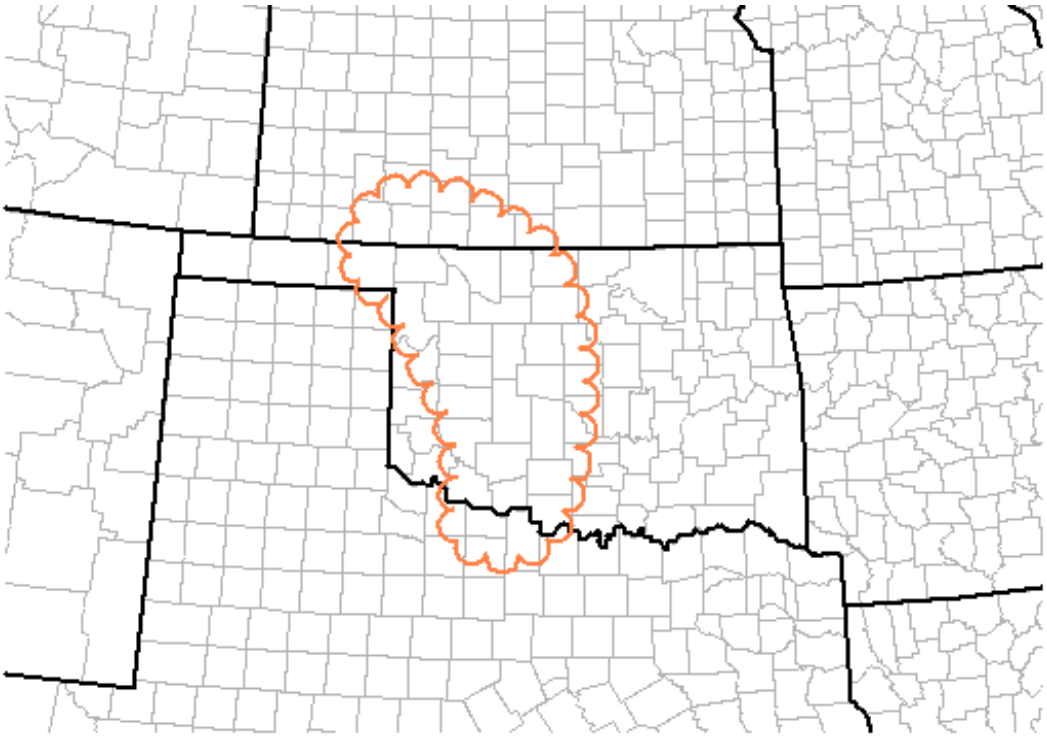
...PLEASE SEE WWW.SPC.NOAA.GOV FOR GRAPHICAL PRODUCT...

..KERR.. 03/17/2003

ATTN...WFO...ICT...FWD...OUN...DDC...AMA...

33789904 34919913 36400007 36740067 37640006 37159810 35759739 33849782
$$

(Severe Thunderstorm MD Graphic)



APPENDIX B

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PRELIMINARY LOCAL STORM REPORT EVENT SOURCES

AIRPLANE PILOT
AMATEUR RADIO
ASOS
AWOS
BROADCAST MEDIA
BUOY
C-MAN STATION
COAST GUARD
CO-OP OBSERVER
COUNTY OFFICIAL
DEPT OF HIGHWAYS
EMERGENCY MNGR
FIRE DEPT/RESCUE
INSURANCE CO
LAW ENFORCEMENT
MESONET
NEWSPAPER
NWS EMPLOYEE
NWS STORM SURVEY
OFFICIAL NWS OBS
OTHER FEDERAL
PARK/FOREST SRVC
POST OFFICE
PUBLIC
SHIP
STORM CHASER
TRAINED SPOTTER
UNKNOWN
UTILITY COMPANY

PRELIMINARY LOCAL STORM REPORT WEATHER EVENT TYPES

AVALANCHE
BLIZZARD
DOWNBURST
DROUGHT
DUST STORM
EXCESSIVE HEAT
EXTREME COLD
EXTR WIND CHILL
FLASH FLOOD
FLOOD
FOG
FREEZE
FUNNEL CLOUD
HAIL
HEAVY RAIN
HEAVY SNOW
HIGH ASTR TIDES
HIGH SUST WINDS
HURRICANE
ICE STORM
LIGHTNING
MARINE WINDS
MICROBURST
NON-TSTORM WIND
RIP CURRENTS
SEICHE
SLEET
STORM SURGE
TORNADO
TROPICAL STORM
TSTORM WIND
WATER SPOUT
WILDFIRE
WIND DAMAGE
WIND GUST